TECHNICAL STATUS AND NPDES SELF-MONITORING REPORT REPORTING PERIOD JANUARY THROUGH DECEMBER 2013 CIWQS PLACE ID: 203805 915 DEGUIGNE DRIVE SUNNYVALE, CALIFORNIA

by

Haley & Aldrich, Inc.
Oakland, California

for

Advanced Micro Devices, Inc.
Sunnyvale, California

File No. 39770-003
14 February 2014

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14 February 2014
File No. 39770-003

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, California 94612

Attention: Ms. Lourdes Gonzales, NPDES Wastewater Division

Subject: Technical Status and NPDES Self-Monitoring Report
Reporting Period January through December 2013
CIWQS Place ID: 203805
915 DeGuigne Drive
Sunnyvale, California

Dear Ms. Gonzales:

Please find enclosed the Technical Status and NPDES Self-Monitoring Report for the January through December 2013 reporting period for the above-referenced facility. The report was prepared on behalf of Advanced Micro Devices, Inc., by Haley & Aldrich, Inc., pursuant to the California Regional Water Quality Control Board's Order Number R2-2009-0059 (Order). The treatment system operated in compliance with the requirements of the Order throughout the reporting period. The annual fee has been paid.

Please feel free to call if you have questions regarding this document.

Sincerely yours,
HALEY & ALDRICH, INC.

Michael J. Zlotoff, PE
Senior Engineer

Peter Bennett, CHG
Lead Hydrogeologist and Vice President

Enclosures

c: Advanced Micro Devices; Attn: Mr. Do Cao
Advanced Micro Devices; Attn: Mr. Brett Stringer
Santa Clara Valley Water District; Attn: Mr. George Cook
California Regional Water Quality Control Board; Attn: Mr. Max Shahbazian

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DISCHARGER CERTIFICATION (40 CFR SECTION 122.22(d))

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Mr. Mike Woollems
Corporate Vice President,
Tax, Finance, and Exec Expense
Advanced Micro Devices, Inc.

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1. INTRODUCTION

The California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB) adopted General National Pollutant Discharge Elimination System (NPDES) Permit No. CAG912003 (Permit), Order No. R2-2009-0059 (Order) on 12 August 2009 for the Advanced Micro Devices, Inc., (AMD) groundwater treatment system (treatment system) located at 915 DeGuigne Drive, in Sunnyvale, California ([Site]; Figure 1); the treatment system operates in accordance with the requirements of the Permit.

1.1 Description of Extraction Well Network and Treatment System

The treatment system treats groundwater pumped from eight extraction wells (EW-1, EW-2, and EW-4 through EW-9[1]) and four basement dewatering sumps (Basement Sumps 1 through 4 and Basement Sump 6). The treatment system consists of a 3,000-gallon feed tank, a primary system consisting of three 2,000-pound granular activated carbon (GAC) vessels in series, and a backup system consisting of two air strippers. Under normal conditions, groundwater is delivered to the feed tank and pumped to the GAC vessels to remove volatile organic compounds (VOCs). The GAC vessel effluent is pumped to a 10,000-gallon storage tank and reused for landscaping, on-Site cooling towers, or discharged to the storm drain. Section 3.1 describes the quarterly treatment system operations in detail.

1.2 Report Organization

This technical report presents a quarterly technical status report for the NDPES self-monitoring program and a combined quarterly and annual NPDES self-monitoring report, and contains the following information in accordance with the Order:

- A summary of the activities performed by Haley & Aldrich on behalf of AMD during the monitoring period of October through December 2013;
- A summary of the work projected to be completed during the period of January through March 2014; and
- Observations and results of analyses, as required in the Permit, including results of influent and effluent water quality sampling, water flow data, an updated estimate of the mass of VOCs removed from groundwater beneath the Site and Site vicinity, and a compliance evaluation.

[1] Well EW-3 has not been operated since 2006 due to its low yield and low VOC concentrations (Geomatrix, 2006).

2. QUARTERLY TECHNICAL STATUS REPORT

2.1 Work Performed for Monitoring Period October through December 2013

Between 1 October and 31 December 2013, Field Solutions Inc. performed the following activities on behalf of AMD and as required by the Permit:

- NPDES Sampling and Analysis: Midstream and effluent samples were collected from primary treatment systems and analyzed for VOCs on 8 October, 15 November, and 18 December 2013 to track treatment system performance. A quarterly influent water sample was collected on 8 October 2013. In addition to VOCs, the effluent sample collected on 8 October 2013 was analyzed for acute toxicity, turbidity, pH, metals, and cyanide. Section 3 describes the sampling activities and results.
- Primary Treatment System Operation and Maintenance: Treatment system inspections were performed weekly to maintain normal operation. Carbon changeouts were performed on 1 October and 10 December 2013 based on the results of midstream samples.

2.2 Work Anticipated for the Reporting Period January through March 2014

The following tasks are planned for the reporting period January through March 2014:

- Continue to treat extracted groundwater;
- Maintain and evaluate treatment system equipment and replace components as needed; and
- Collect monthly effluent water samples, quarterly influent water samples, and monthly midstream water samples to analyze for VOCs and track treatment system performance.

3. COMBINED QUARTERLY AND ANNUAL NPDES SELF-MONITORING REPORT

The following sections summarize the primary and backup treatment system operations, flow rate measurements, sample collection activities, and analytical results for January through December 2013.

3.1 System Operation

The treatment system consists of a 3,000 gallon feed tank and primary system consisting of three 2,000-pound GAC vessels, and a backup system consisting of two air strippers. Groundwater was treated using the primary system during the reporting period except during the carbon changeouts. On 1 to 2 May 2013, 31 May to 1 June 2013, 23 to 24 July 2013, 5 to 6 September 2013, 1 to 2 October 2013, and 10 to 11 December 2013, the backup air stripper system operated for a 24-hour period while the virgin carbon was soaking.

Four gallons of scale inhibitor were added to the treatment system during the fourth quarter when the air strippers were operating to inhibit the precipitation of scale and manganese on treatment system piping and equipment. A total of 14 gallons of scale inhibitor were added to the treatment system between January and December 2013.

3.2 Flow Rate and Estimated Total Discharge

The total influent volume delivered to the treatment system is estimated using weekly totalizer readings. A summary of cumulative flow data for the fourth quarter of 2014 is presented in Table I. The total estimated discharge from the system during this quarter was 9,642,200 gallons, with an average flow rate of 67.0 gallons per minute (gpm). Approximately 346,833 gallons (4 percent) of treated groundwater were reused on-Site during the fourth quarter.

A summary of cumulative flow data between January and December 2013 is presented in Table II. The total estimated discharge from the system during 2013 was 34,340,400 gallons, with an average flow rate of 65.3 gallons per minute (gpm). Approximately 1,391,265 gallons (4 percent) of treated groundwater were reused for landscaping or on-Site cooling towers during the year.

3.3 Sample Collection

This section describes the sample collection required by the Permit to track treatment system performance. A summary of treatment system sampling quality assurance/quality control (QA/QC) is presented in Table III; a summary of laboratory contact information and analytical QA/QC for the treatment system sampling is presented in Table IV.

During the fourth quarter of 2014, samples were collected from the treatment system monthly and analyzed for VOCs; annual and triennial analyses were also performed (pH, turbidity, acute toxicity, metals, and cyanide). Effluent and midstream water samples were collected on 8 October, 15 November, and 18 December 2013. A quarterly influent water sample was collected on 8 October 2013. All treatment system samples were collected directly from the in-line sampling ports.

Sampling containers and analyses are listed below:

- VOCs: 40-milliliter glass VOA vials preserved with hydrochloric acid, analyzed by United States Environmental Protection Agency (USEPA) Method 8260B;
- Metals (antimony, arsenic, beryllium, cadmium, chromium, copper, lead, nickel, selenium, silver, thallium, and zinc): 500-milliliter polyethylene container preserved with nitric acid, analyzed by USEPA Method 200.8;
- Mercury: 500-milliliter unpreserved glass jar, analyzed by USEPA Method 1631E;
- Cyanide: 500-milliliter polyethylene container preserved with sodium hydroxide, analyzed by SM20-4500-CN C&E Low Level; and
- Acute toxicity: 5-gallon unpreserved polyethylene carboys, analyzed by USEPA-821-R-02-012.

The samples were placed in ice-cooled chests and transported under strict chain of custody procedures to Curtis & Tompkins (C&T), in Berkeley, California, a California-certified analytical laboratory. The analyses for acute toxicity and mercury were subcontracted by C&T to Alpha Analytical Laboratories in Dublin, California, a California-certified analytical laboratory. The analysis for cyanide was subcontracted by C&T to Caltest Analytical Laboratory in Napa, California, a California-certified analytical laboratory.

3.4 Quality Assurance and Quality Control Procedures

QA/QC procedures for the treatment system samples assessed the quality of the data by evaluating its accuracy, precision, and completeness. Trip blanks were submitted to the laboratory for analyses identical to those performed on the water samples. The laboratory also analyzed matrix spike/ matrix spike duplicate (MS/MSD) samples, method blanks, and blank spike/ blank spike duplicate (BS/BSD) samples to provide internal quality control. A summary of analytical QA/QC for groundwater sample analysis is presented in Table IV for the fourth quarter of 2014. The QA/QC results for the fourth quarter are discussed below.

3.4.1 Field Procedures

Trip blanks are used to monitor for potential false positive results introduced during transport or in the laboratory. One trip blank is shipped to the laboratory for each sampling event and analyzed for VOCs by USEPA Method 8260B, but the trip blank is not analyzed unless cross-contamination is suspected. No trip blanks were analyzed during this quarter.

3.4.2 Data Precision

The laboratory prepared and analyzed BS/BSD and MS/MSD samples to evaluate the precision of the analytical methods. All relative percent differences calculated from the analyses of these samples were within method control limits.

3.4.3 Data Accuracy

Data accuracy is assessed by blank samples, BS/BSD samples, and MS/MSD samples, based on recoveries, and expressed as a percent of the true or known concentration. Surrogate recoveries may also be used to assess accuracy. High recoveries were observed for 1,1-dichloroethene in the BS and BSD for the November 2013 samples, but the relative percent difference was within limits and the high recovery was not associated with any reported results.

With this exception, all percent recoveries for the analysis of BS/BSD samples, MS/MSD samples, and surrogate samples were within method control limits.

3.4.4 Data Completeness

Haley & Aldrich reviewed the data in accordance with the National Functional Guidelines for Superfund Organic Methods Data Review (USEPA, 2008). Based on the amount of data meeting project QA/QC goals, the data generated are acceptable and considered complete.

3.5 Laboratory Analytical Results

A summary of the VOC analytical results for samples collected during the October through December 2013 monitoring period are included in Table V, and VOC analytical results for samples collected during the entire year are included in Table VI. Analytical results for turbidity, pH, metals, cyanide, and acute toxicity are included in Table VII. The fourth quarter results are discussed below.

3.5.1 Influent

One influent sample was collected during the October through December 2013 monitoring period per NPDES requirements. The following constituents were detected in the influent water (results below reflect the maximum concentration of primary and duplicate samples):

- Tetrachloroethene at 0.6 micrograms per liter (μg/L);
- Trichloroethene at 58 μg/L;
- cis-1,2-Dichloroethene (cDCE) at 77 μg/L;
- trans-1,2-Dichloroethene at 1.3 μg/L;
- 1,2,3-Trichlorobenzene at 13 μg/L;
- 1,2,4 Trichlorobenzene at 30 μg/L; and
- 1,1,1-Trichloroethane at 0.6 μg/L.

3.5.2 Midstream

Three midstream samples were collected between the lead GAC vessel and the second GAC vessel (location M-1) and between the second GAC vessel and before the third GAC vessel (location M-2) during the October through December 2013 monitoring period. The following constituents were detected in the midstream samples:

- Location M-1:
  - cDCE at 21 μg/L on 8 October 2013;
  - cDCE at 39 μg/L on 15 November 2013; and
  - cDCE at 5.0 μg/L on 18 December 2013.
  - 1,1-Dichloroethane at 0.5 μg/L on 15 November 2013;
- Location M-2:
  - cDCE at 3.1 μg/L on 18 December 2013.

3.5.3 Effluent

No VOCs were detected above the laboratory reporting limit in any of the three effluent samples collected during the October through December 2013 monitoring period.

The acute toxicity test showed 100% survival. pH was measured at 7.64, and turbidity was measured at 0.72 nephelometric turbidity units. Of the metals, only selenium and zinc were detected above the laboratory reporting limit, at concentrations of 3.3 μg/L and 22 μg/L, respectively.

3.6 VOC Mass Removal

Based on analytical results, the estimated average VOC mass removal rate was 0.15 pounds per day during this reporting period; the total estimated mass of VOCs removed during the reporting period was approximately 13.4 pounds (Table VIII). From January through December 2013, an estimated 0.14 pounds of VOCs were removed per day on average, or approximately 49 pounds over the year.

3.7 NPDES Compliance Summary

A review of the January through December 2013 analytical results from influent samples and from system effluent samples indicated that the treatment system removed VOCs from extracted groundwater to below the NPDES effluent limitations.

Based on the data collected from January through December 2013 in accordance with the Order, the treatment system is operating in compliance with the requirements of the Permit.

REFERENCES

1. California Regional Water Quality Control Board, 2009, "Order No. R2-2009-0059, NPDES No. CAG912003, General Waste Discharge Requirements for: Discharge or Reuse of Extracted and Treated Groundwater resulting from the Cleanup of Groundwater Polluted by Volatile Organic Compounds (VOC)," 19 August 2009.

2. Geomatrix Consultants, Inc., 2006, "2005 Annual Groundwater Monitoring Report, Advanced Micro Devices, Inc., 915 DeGuigne Drive," 31 January 2006.

3. United States Environmental Protection Agency, 2008, "Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, EPA-540-R-08-01," June 2008.

TABLES

TABLE I

SUMMARY OF FLOW DATA - OCTOBER THROUGH DECEMBER 2013
915 DEGUIGNE DRIVE
SUNNYVALE, CALIFORNIA

Date	Cumulative Totalizer Reading (gallons)	Total Effluent Volume (gallons)	Average Flow Rate[1] (gpm)	Supply Reuse Volume (gallons)	Irrigation Reuse Volume (gallons)	Total Reuse Volume (gallons)	Percent Reused	Air Stripper Volume[2] (gallons)
9/25/2013	966,157,200	--	--	--	--	--	--	--
10/1/2013	966,684,000	526,800	62.87	19,691	84	19,775	4%	0
10/2/2013	966,782,000	98,000	63.72	3,614	0	3,614	4%	92,261
10/8/2013	967,337,900	555,900	63.91	20,440	39	20,479	4%	0
10/17/2013	968,169,500	831,600	62.90	31,069	166	31,235	4%	0
10/22/2013	968,619,300	449,800	62.59	16,887	0	16,887	4%	0
10/30/2013	969,310,400	691,100	61.83	26,266	5,865	32,131	5%	0
11/5/2013	969,865,000	554,600	62.15	20,971	2,034	23,005	4%	0
11/15/2013	970,754,800	889,800	62.04	33,704	3	33,707	4%	0
11/22/2013	971,417,450	662,650	67.22	23,166	214	23,380	4%	0
11/29/2013	972,175,000	757,550	73.42	24,247	0	24,247	3%	0
12/3/2013	972,607,000	432,000	72.52	13,999	0	13,999	3%	0
12/10/2013	973,289,000	682,000	71.37	22,457	0	22,457	3%	0
12/11/2013	973,403,100	114,100	67.72	3,960	0	3,960	3%	107,698
12/18/2013	974,120,400	717,300	70.73	23,834	0	23,834	3%	0
12/27/2013	975,067,400	947,000	73.50	30,280	1	30,281	3%	0
1/3/2014	975,799,400	732,000	72.15	23,841	1	23,842	3%	0
Total Estimated Flow for Quarter: 9,642,200 gallons								
Average Flow for Quarter: 67.0 gpm								

Notes:

1. Average flow rate is calculated using elapsed time to the nearest minute between weekly totalizer readings.
2. The backup air stripper was in operation during carbon changeouts on 10/01 to 10/02 and 12/10 to 12/11.

Abbreviation:

gpm = gallons per minute

TABLE II

SUMMARY OF FLOW DATA AND MASS REMOVED
JANUARY THROUGH DECEMBER 2013
915 DEGUIGNE DRIVE
SUNNYVALE, CALIFORNIA

Period	Total Effluent Volume (gallons)	Average Flow Rate[1] (gpm)	Total Reuse Volume (gallons)	Percent Reused	Air Stripper Volume[2] (gallons)	Influent VOC Concentration (µg/L)	Average VOC Removal Rate (lbs/day)	Estimated VOC Mass Removed (lbs)
First Quarter	8,896,200	69.5	366,686	4%	0	135	0.11	10.1
Second Quarter	7,930,500	59.9	368,796	5%	139,169	214	0.16	14.4
Third Quarter	7,871,500	60.4	308,950	4%	144,863	161	0.12	10.8
Fourth Quarter	9,642,200	67.0	346,833	4%	199,959	181	0.15	13.4
2013	34,340,400	65.3	1,391,265	4%	483,991	173	0.14	49

Notes:

1. Average flow rate is calculated using elapsed time to the nearest minute between weekly totalizer readings.
2. The backup air stripper was in operation during carbon changeouts on 5/01 to 5/02, 5/31 to 6/01, 7/23 to 7/24, 9/05 to 9/06, 10/01 to 10/02, and 12/10 to 12/11.

Abbreviation:

VOC = volatile organic compound
µg/L = micrograms per liter
gpm = gallons per minute
lbs/day = pounds per day

TABLE III

SUMMARY OF TREATMENT SYSTEM SAMPLING QA/QC - OCTOBER THROUGH DECEMBER 2013
915 DEGUIGNE DRIVE
SUNNYVALE, CALIFORNIA

Who performed sampling?	Field Solutions, Inc. 6280 San Ignacio Avenue, #P San Jose, California 95119 Contact: Mark Adler (408) 281-2322
Chain-of-custody forms completed for all samples?	Yes
Zero headspace in sample containers (VOCs only)?	Yes
Samples preserved according to analytical method?	Yes
Required field QA/QC samples taken?	Yes
Explain any "No" answers:	NA

Abbreviations:

NA = not applicable
QA/QC = quality assurance/quality control
VOCs = volatile organic compounds

TABLE IV

SUMMARY OF ANALYTICAL QA/QC FOR TREATMENT SYSTEM SAMPLING
OCTOBER THROUGH DECEMBER 2013
915 DEGUIGNE DRIVE
SUNNYVALE, CALIFORNIA

Who performed analysis?	Alpha Analytical Laboratories 6398 Dougherty Road #35, Dublin, California 94568 Contact: Robbie Phillips, (925) 828-6226 Caltest Analytical Laboratory 1885 North Kelly Road, Napa, California 94558 Contact: Patrick Barnard, (707) 258-4000 Curtis & Tompkins 2323 Fifth Street, Berkeley, California 94710 Contact: Tracy Babjar, (510) 486-0900
Analytical methods used?	Acute toxicity by EPA-821-R-02-012 Cyanide by SM20-4500-CN C&E, Low Level Mercury by EPA Method 1631E Metals by EPA Method 200.8 Volatile Organic Compounds by GC/MS EPA Method 8260B
Is the lab state-certified for the above analytical methods?	Yes
Analyses performed according to standard methods?	Yes
Sample holding times met?	No[1]
Analytical results reported for all values above reporting limit?	Yes
QA/QC analyses run consistent with analytical methods? (includes blanks [field/travel/method], field replicate, spikes [BS/BSD and MS/MSD], and surrogates)	Yes
QA/QC results meet all acceptance criteria	Yes[2]
QA/QC results and acceptance criteria on file?	Yes
Explain any "No" answers:	See notes below

Notes:

1. The fish bioassay was three hours outside the hold time, but no other QA/QC issues were identified.
2. High recovery was observed for 1,1,-DCE in the BS/BSD for the November 2013 samples, but the relative percent difference was within limits and the high recovery was not associated with any reported results.

Abbreviations:

BS/BSD = blank spike/blank spike duplicate
GC/MS = gas chromatography/mass spectroscopy
MS/MSD = matrix spike/matrix spike duplicate
QA/QC = quality assurance/quality control
1,1-DCE = 1,1-dichlorothene

TABLE V

NPDES TREATMENT PLANT MONITORING RESULTS - VOLATILE ORGANIC COMPOUNDS
915 DEGUIGNE DRIVE
SUNNYVALE, CALIFORNIA

Concentrations in micrograms per liter (µg/L)

Sample ID	Date Sampled	PCE	TCE	1,1-DCA	cDCE	tDCE	1,2,3-TCB	1,2,4-TCB	1,1,1-TCA	Freon 113	Chloroform	Other VOCs[1]
Influent												
I-1	10/8/2013	**0.6 / 0.6**	**58 / 58**	<0.5 / <0.5	**77 / 74**	**1.3 / 1.1**	**13 / 13**	**30 / 30**	**0.5 / 0.6**	<5.0 / <5.0	<0.5 / <0.5	None detected
Mid-Stream[4]												
M-1	10/8/2013	<0.5	<0.5	<0.5	**21**	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
M-1	11/15/2013	<0.5	<0.5	**0.5**	**39**	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
M-1	12/18/2013	<0.5	<0.5	<0.5	**5.0**	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
M-2	10/8/2013	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
M-2	11/15/2013	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
M-2	12/18/2013	<0.5	<0.5	<0.5	**3.1**	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
Effluent												
E-1	10/8/2013	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
E-1	11/15/2013	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
E-1	12/18/2013	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
NPDES Effluent Limitation		5	5	5	5	5	NA	NA	5	5	5	

Notes:

1. See laboratory analytical report for full list of analytes.
2. "<" indicates compound not detected at or above the laboratory reporting limit shown. Detections are shown in bold.
3. "<0.5 / <0.5" indicates that a duplicate sample was collected (primary result / duplicate result).
4. Mid-stream sample M-1 collected after the first GAC vessel. Mid-stream sample M-2 collected after the second GAC vessel.

Abbreviations:

µg/L = micrograms per liter
NA = not applicable - no effluent limitation
GAC = granular activated carbon
PCE = tetrachloroethene
TCE = trichloroethene
1,1-DCA = 1,1- dichloroethane
cDCE = cis-1,2-dichloroethene
tDCE = trans-1,2-dichloroethene
1,2,3-TCB = 1,2,3-trichlorobenzene
1,2,4-TCB = 1,2,4-trichlorobenzene
1,1,1-TCA = 1,1,1-trichloroethane

TABLE VI

NPDES TREATMENT PLANT MONITORING RESULTS - VOLATILE ORGANIC COMPOUNDS
JANUARY THROUGH DECEMBER 2013
915 DEGUIGNE DRIVE
SUNNYVALE, CALIFORNIA

Concentrations in micrograms per liter (µg/L)

Sample ID	Date Sampled	Date Analyzed	PCE	TCE	1,1-DCA	cDCE	tDCE	1,2,3-TCB	1,2,4-TCB	1,1,1-TCA	Freon 113	Chloroform	Other VOCs[1]
Influent													
I-1	1/3/2013	1/5/2013	**0.6**	**59**	<0.5[1]	**52**	**1.0**	**7.3**	**13**	<0.5	**2.0**	<0.5	**13**[5]
I-1	4/11/2013	4/17/2013	**0.6 / 0.7**	**71 / 70**	<0.5 / <0.5	**88 / 86**	**1.5 / 1.5**	**20 / 19**	**32 / 30**	**0.6 / 0.6**	<5.0 / <5.0	<0.5 / <0.5	None detected
I-1	7/3/2013	7/8/2013	**0.6 / 0.6**	**60 / 59**	<0.5 / <0.5	**63 / 62**	**1.1 / 1.1**	**10 / 9.9**	**26 / 25**	**0.6 /** <0.5	<5.0 / <5.0	<0.5 / <0.5	None detected
I-1	10/8/2013	10/10/2013	**0.6 / 0.6**	**58 / 58**	<0.5 / <0.5	**77 / 74**	**1.3 / 1.1**	**13 / 13**	**30 / 30**	**0.5 / 0.6**	<5.0 / <5.0	<0.5 / <0.5	None detected
Mid-Stream[4]													
M-1	1/3/2013	1/5/2013	<0.5	<0.5	<0.5	**6.2**	<0.5	<0.5	<0.5	<0.5	**1.1**	<0.5	None detected
M-1	3/21/2013	3/27/2013	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
M-1	4/11/2013	4/16/2013	<0.5	<0.5	<0.5	**0.7**	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
M-1	5/7/2013	5/12/2013	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
M-1	6/12/2013	6/15/2013	<0.5	<0.5	<0.5	**0.8**	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
M-1	7/3/2013	7/8/2013	<0.5	<0.5	<0.5	**21**	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
M-1	8/15/2013	8/17/2013	<0.5	<0.5	**0.5**	**39**	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
M-1	9/11/2013	9/17/2013	<0.5	<0.5	<0.5	**5.9**	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
M-1	10/8/2013	10/9/2013	<0.5	<0.5	<0.5	**21**	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
M-1	11/15/2013	11/21/2013, 11/24/2013	<0.5	<0.5	**0.5**	**39**	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
M-1	12/18/2013	12/29/2013	<0.5	<0.5	<0.5	**5.0**	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
M-2	2/13/2013	2/19/2013	<0.5	<0.5	<0.5	**3.9**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	None detected
M-2	3/21/2013	3/27/2013	<0.5	<0.5	<0.5	**1.2**	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
M-2	4/11/2013	4/16/2013	<0.5	<0.5	<0.5	**2.4**	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
M-2	5/7/2013	5/12/2013	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
M-2	6/12/2013	6/15/2013	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
M-2	7/3/2013	7/8/2013	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
M-2	8/15/2013	8/17/2013	<0.5	<0.5	<0.5	**1.3**	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
M-2	9/11/2013	9/17/2013	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
M-2	10/8/2013	10/10/2013	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
M-2	11/15/2013	11/21/2013, 11/24/2013	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
M-2	12/18/2013	12/29/2013	<0.5	<0.5	<0.5	**3.1**	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected

TABLE VI

NPDES TREATMENT PLANT MONITORING RESULTS - VOLATILE ORGANIC COMPOUNDS
JANUARY THROUGH DECEMBER 2013
915 DEGUIGNE DRIVE
SUNNYVALE, CALIFORNIA

Concentrations in micrograms per liter (µg/L)

Sample ID	Date Sampled	Date Analyzed	PCE	TCE	1,1-DCA	cDCE	tDCE	1,2,3-TCB	1,2,4-TCB	1,1,1-TCA	Freon 113	Chloroform	Other VOCs[1]
Effluent													
E-1	1/3/2013	1/5/2013	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	None detected
E-1	2/13/2013	2/19/2013	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	None detected
E-1	3/21/2013	3/27/2013	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
E-1	4/11/2013	4/16/2013	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
E-1	5/7/2013	5/12/2013	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
E-1	6/12/2013	6/15/2013	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
E-1	7/3/2013	7/8/2013	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
E-1	8/15/2013	8/17/2013	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
E-1	9/11/2013	9/17/2013	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
E-1	10/8/2013	10/9/2013	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
E-1	11/15/2013	11/21/2013, 11/24/2013	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
E-1	12/18/2013	12/29/2013	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<0.5	None detected
NPDES Effluent Limitation			5	5	5	5	5	NA	NA	5	5	5	

Notes:

1. See laboratory analytical report for full list of analytes.
2. "<" indicates compound not detected at or above the laboratory reporting limit shown. Detections are shown in bold.
3. "<0.5 / <0.5" indicates that a duplicate sample was collected (primary result / duplicate result).
4. Mid-stream sample M-1 collected after the first GAC vessel. Mid-stream sample M-2 collected after the second GAC vessel.
5. Acetone was detected at a concentration of 13 µg/L.

Abbreviations:

µg/L = micrograms per liter
NA = not applicable - no effluent limitation
GAC = granular activated carbon
PCE = tetrachloroethene
TCE = trichloroethene
1,1-DCA = 1,1- dichloroethane
cDCE = cis-1,2-dichloroethene
tDCE = trans-1,2-dichloroethene
1,2,3-TCB = 1,2,3-trichlorobenzene
1,2,4-TCB = 1,2,4-trichlorobenzene
1,1,1-TCA = 1,1,1-trichloroethane

TABLE VII

NPDES TREATMENT PLANT MONITORING RESULTS - ANNUAL AND TRIENNIAL ANALYSES
915 DEGUIGNE DRIVE
SUNNYVALE, CALIFORNIA

Sample ID	Date Sampled	Date Analyzed	Turbidity (NTU)	pH	Antimony (µg/L)	Arsenic (µg/L)	Beryllium (µg/L)	Cadmium (µg/L)	Chromium (µg/L)	Copper (µg/L)	Cyanide (µg/L)	Lead (µg/L)	Mercury (ng/L)	Nickel (µg/L)	Selenium (µg/L)	Silver (µg/L)	Thallium (µg/L)	Zinc (µg/L)	Acute Toxicity (% Survival)
Effluent																			
E-1	10/8/2013	See Note 1	0.72	7.64	<0.50	<1.0	<0.86	<0.26	<0.50	<0.50	<1	<0.50	<0.5	<1.0	**3.3**	<0.25	<1.0	**22**	100%
NPDES Effluent Limitation			NA	6.5 - 8.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	90%[3]
NPDES Trigger			5	NA	6	10	4	1.1	NA	4.7	2.9	3.2	25	27	5	2.2	1.7	86	NA

Notes:

1. The sample was analyzed for metals on 11/12/2013 and 11/13/2013; mercury on 10/15/2013; acute toxicity on 10/9/2013 to 10/13/2013; and cyanide on 10/19/2013. pH and turbidity were measured during sampling.
2. "<" indicates compound not detected at or above the laboratory reporting limit shown. Detections are shown in bold.
3. The survival of test fish shall not be less than a three sample moving median of 90% survival and a single test value of not less than 70%.

Abbreviations:

µg/L = micrograms per liter
ng/L = nanograms per liter
NA = not applicable - no effluent limitation/trigger
NTU = nephelometric turbidity units

TABLE VIII

ESTIMATED TOTAL VOLATILE ORGANIC COMPOUND MASS REMOVED
OCTOBER THROUGH DECEMBER 2013
915 DEGUIGNE DRIVE
SUNNYVALE, CALIFORNIA

Date	Influent VOC Concentration[1] (µg/L)	Average Flow (gpm)	Average VOC Removal Rate (lbs/day)	Estimated VOC Mass Removed (lbs)
October	181	62.8	0.14	4.2
November	181	65.9	0.14	4.3
December	181	72.0	0.16	4.8
Estimated Total VOC Mass Removed for Quarter: 13.4 lbs				
Estimated Average VOC Mass Removal Rate: 0.15 lbs/day				

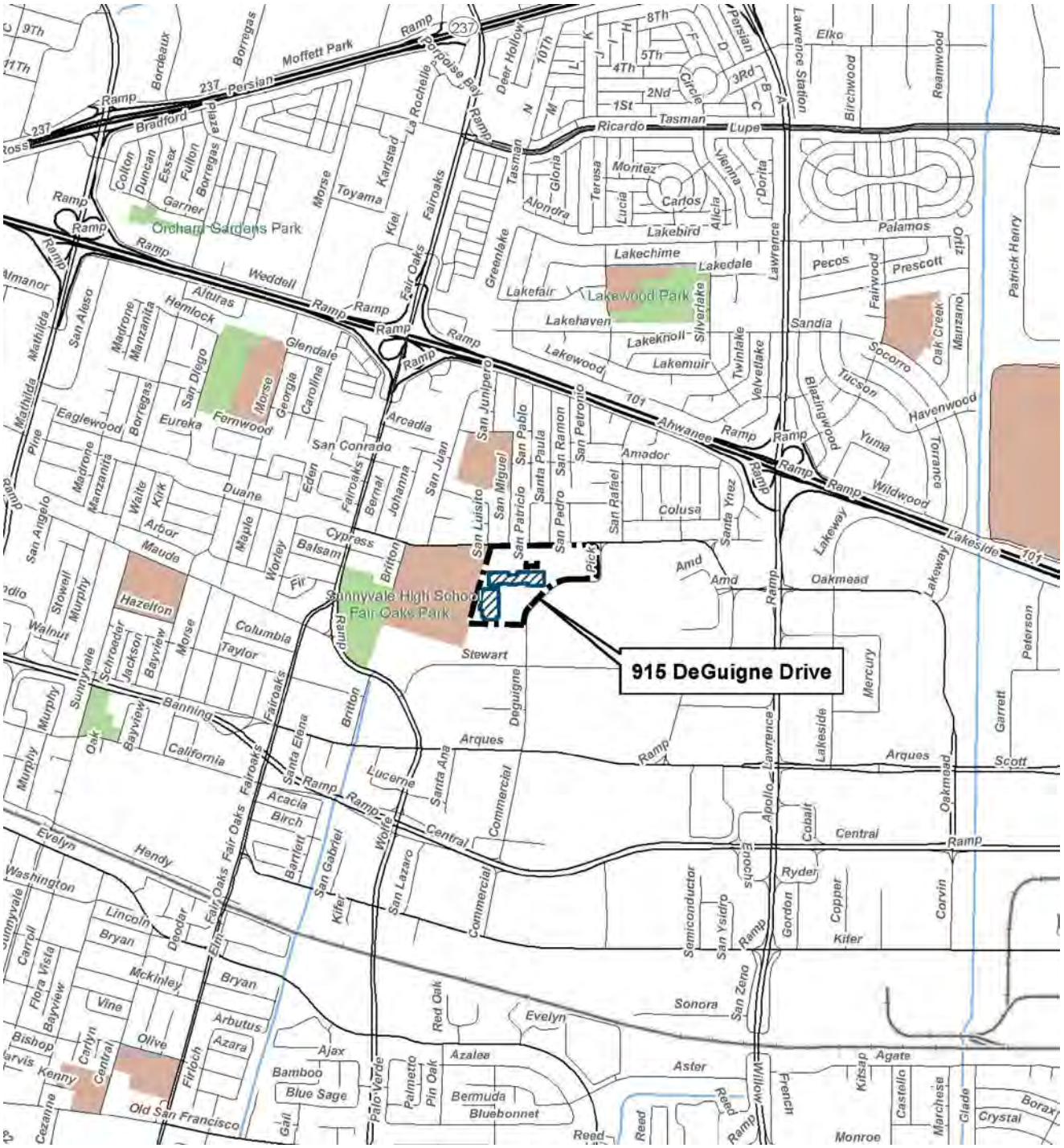
Notes:

1. For mass removal calculations, the analytical results from the influent sample collected in the first month of the quarter were used for the influent concentration of the second and third month of the quarter, when the influent samples were not collected.

Abbreviations:

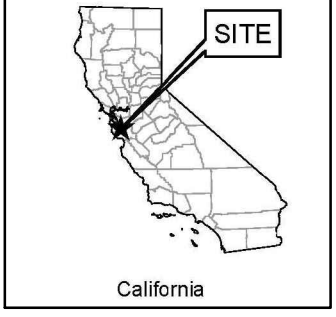
VOC = volatile organic compound
µg/L = micrograms per liter
gpm = gallons per minute
lbs/day = pounds per day

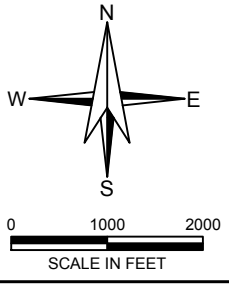
FIGURES



NOTE:

1. BASEMAP FROM STREETMAP PRO 2007 (ENVIRONMENTAL SYSTEMS RESEARCH INSTITUTE, INC. [ESRI], 2007)





HALEY & ALDRICH

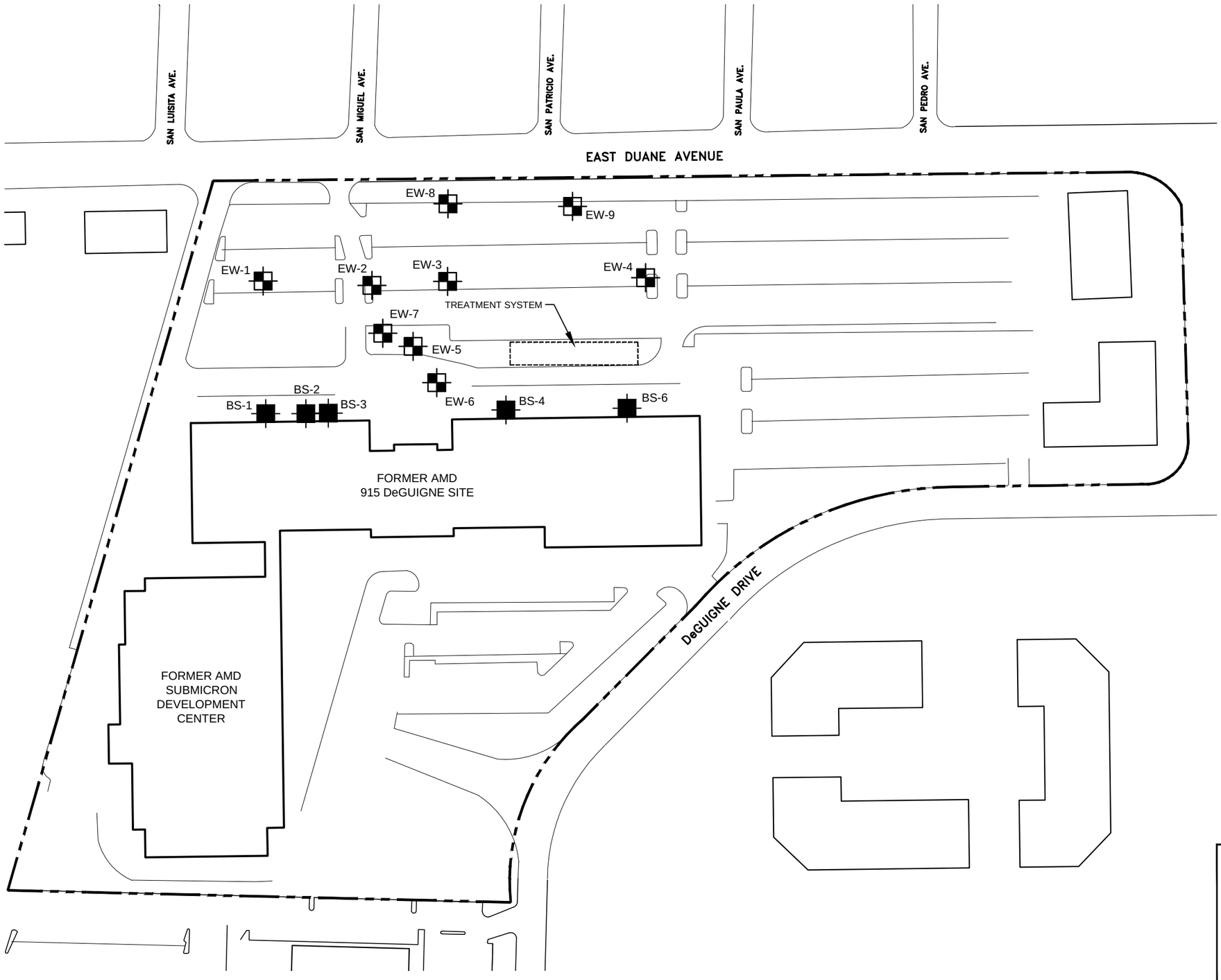
915 DeGUIGNE DRIVE
SUNNYVALE, CALFIORNIA

SITE LOCATION MAP

SCALE: AS SHOWN
JANUARY 2014

FIGURE 1

G:\39770 DEGUIGNE\GLOBAL\CAD\DRAWINGS\39770-001-0001 SITE LOC MAP.DWG



LEGEND

EW-4 EXTRACTION WELL

BS-6 BASEMENT SUMP

PROPERTY BOUNDARY

NOTES:

1. BASEMAP BASED ON ELECTRONIC CAD FILE ENTITLED "SITE PLAN" DATED 26 APRIL 2012 FROM AMEC.

N
W E
S

0 150 300

SCALE IN FEET

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915 DeGUIGNE DRIVE
SUNNYVALE, CALFIORNIA

SITE PLAN

SCALE: AS SHOWN
JANUARY 2014

FIGURE 2

G:\39770 DEGUIGNE\GLOBAL\CAD\DRAWINGS\39770-001-0002 SITE PLAN.DWG